FLOUNDER INVESTIGATIONS

For many years flounders have formed an important part of the New England trawl catch. In 1957 the 5 species that are commercially exploited furnished about 20 percent of the ex-vessel value of fin-fish landed at New England ports. The annual catch of flounders has decreased in recent years, however, due mainly to reduced catches of yellowtail and blackback, the principal species in the catch.

It is important to specify the factors responsible for reduced catches and to study the biology of flounder species, especially with regard to vital statistics parameters, because such information is often of importance for efficient resource management. It is possible that the application of the results of biological research can raise the yield in those fisheries that have been intensively exploited.

OL SCHEDULE SUMMARY COL

Investignation: Flounder Biological Leberatory: Woods Hole, Mass.

| 1. Yellowtail: Description of fishery and landings | | | | | 7 | 118001 | LIGALE | ັນ | | | |
|--|--|--------|----------|-------------------------|--------|---------|----------------|----------------|-------------|--------|------|
| i { | | Cost | 57 58 | 59 | 09 | 19 | 62 | 63 | 179 | 65 | 99 |
| | i landings | 7.0 | 3.6 2.1 | 1, 1,3 | i | - | i | ! | 1 | 1 | 1 |
| , | | 21.6 | 6.45.0 | | _ | ì | 1 | - | • | 1 | 1 |
| 3. Yellowtall: Age and growth - So. New England ground | r England ground | 23.5 | 6.h 6.3 | 3 5 5 | 5.3 | 1 | i | | 1 | | 1 |
| 1 | Bank | 17.2 | | 4 | - | 3.2 | | 1 | • | 1 | 1 |
| 1 | od ground | 11.0 | 0 | D F | 1.3 | | : | 1 | | • | 1 |
| Yellowtail: | | 1.8.6 | 1-72-3 | 3 1.6 | 0.9 | Ì | 5.9 | 6.5 | 7.0 | 8.7.1 | 10, |
| (| ew England ground | 12.0 | | 1.6 | 7 | 3.2 | 5.5 | 1 | | 1 | 1 |
| 8. Yellowtail: Fishing Mortality - Cape Cod | Cod ground | 9.5 | 8 | 1.2 | 7 | | 5.5 | 1 | • | | 1 |
| 1 | res Bank | 17.0 | 1 | 1 | 1.6 | 3.4 | 11.9 | 7.0 | ŀ | | 1 |
| 1 | ds | 114.3 | 0.9 | 9 1.h | 1 | | 2.1 | 6.7 | - | - | 1 |
| Yellowtail: Recruitment study | nnds | 19.0 | 7 | 1 | | 1.2 | 2.1 | 6.7 | 8.5 | • | 1 |
| ľ | | 23.9 | - | | 1 | i | 2.1 | 19 • 17 | | 8.71 | 3 |
| • | and samples | 35.5 | | Į | 0.9 | 7 | 2.1 | 7.0 | , , | _ | 10.3 |
| 1 | | 35.0 | | 1 | 0.0 | 1.6 | 2.1 | 7.0 | | 8.71 | ٥, |
| 1 | mples | | - | ! | | 1.6 | 2.1 | 11.11 | | | 10 |
| 1 ' | and samples | | | 800 | | 1 | 2.1 | 1 | 6.7 | 7.81 | 01 |
| | Comment of the Commen | | | | | | | | | + | |
| 130A4T | Investigation Total | 1365,6 | 20.023.6 | 9 16 | 9 27 8 | 28. | 36.5 | 12.61 | 51.2 51.2 | 10 | |
| | 5 | 7777 | | t | | | | | , | | Ì |
| - | | | ſ | | |] | | | ⊣ ¦(| Date | T |
| Laboratory Regional or Area Office | Washington | Ortroc | rrepared | ed by: | ١. | Fred E. | ZIIIX | | ا | 0/6/52 | Τ |
| | | | Record | Recommended | λig | | | | i | Drte | |
| | | | Lab | Lab. Director Herbert W | or He | rbert | 4 | raham | | 8/6/29 | 6 |
| | | | Reg. | Reg. or Area | e Dir | " Jane | 9 6 | Sheet | dear ? | Š | |
| | | | Branc | Branch Chief | ¢. | D | 166 | 16 -1 | -12-24-59 | -55 | |
| The state of the s | | | Approved | red by: | 9.0 | | Acced | | 6.1 | راز د | |
| TATANA AND THE TATANA | | | | | Div | ision, | Division Chief | for | Director | Ci. | |
| | | | | | | | | | | | 7 |
| | | | | | | | | | | | 1 |
| | | | | | | | | | | | |

*Total needed by Laboratory for Froject in theusands of dollars.

humber of Projects arely #724 7/9/59 be reduced by combining motality projects.

Sheet No. 1

Location: Woods Hole, Mass. Date: August 6, 1959 File No.

Research Project Outline

| Title of Project: Yellowtail: Description of fishery and landings |
|--|
| Investigation Title: Flounder |
| Investigation Chief: F. E. Lux |
| Project Leader: F. E. Lux, Research Fishery Biologist GS-9 Name Title Grade |
| Assistants: (Title and Grade) Vacant, Statistical Clerk, GS-3 |
| Collaborators: |
| Need for Information: To describe history of fishery, present status, and record landings as a preliminary to futher yellowtail studies. |
| Objective: Study history of fishery and landings from past records. |
| Method of Procedure: |
| Phase 1: Examine history and methods of fishery. |

Phase 2: Extract landings data from records.

Shcet No. 2

File No.:

Method of Procedure: (Cont'd)

Phase 3:

| Estimated Costs: Total | Needed by Laborat | tory for Complete Proje | ct <u>7.0</u> |
|---|--------------------|-------------------------------------|--|
| | FY <u>1959</u> | FY <u>1960</u> | FY 1961 |
| Personal Services | 0.5 | | - |
| Other Expenses: Within Project | 0.2 | | |
| Lab. Adm. & Ser. | 0.6 | | to the second se |
| Lab. Total | 1.3 | | tent disc |
| Regional Office Washington Office | .913 | | |
| Total | | | |
| Recommended Source of Fu | | and regular -K, Regular, Contribut | ed, etc.) |
| Estimated Date of Comple | tion: Phase 1 FY 5 | 8; Phase 2 FY 59; Phase | 3 FY ; Project FY 59 |
| Recommended by: Originator Fred E | • Lux | | 8/6/59 <u>Date</u> |
| Investigation Chief I | red E. Lux | | 8/6/59 |
| Laboratory Director H | | | 8/6/59 |
| Regional Director | Joseph t. Vun | evelu | 8/19/59 |
| Branch Chief | 1 2/1/2 | | 12-24-59 |
| Approved by: Division Chief for Dire | ector // if | | 1. 4 60 |

Remarks

Sheet No. 1

Location: Woods Hole, Mass. Date: August 6, 1959
File No.

Research Project Outline

| Title of Project: Yellowtail: Definition of Stocks |
|--|
| Investigation Title: Flounder |
| Investigation Chief: F. E. Lux |
| Project Leader: F. E. Lux, Fishery Research Biologist, GS-9 |
| Name Title Grade |
| Assistants: (Title and Grade) Vacant, Statistical Clerk, GS-3 |
| |
| Collaborators: |
| Need for Information: The identification of stocks or stock is a necessary prerequisite to population dynamics studies and management proposals. |
| Objective: To identify the limits of stock or stocks that are commercially exploited. |
| Method of Procedure: |
| Phase 1: Mark fish on the several grounds where vellowtail are cought |

Phase 2: Interpret tag return information.

commercially.

Flounder - 2 Shcet No. 2

Filc No.:

Method of Procedure: (Cont'd)

Phase 3:

| Estimated Costs: Total Nee | ded by Laboratory | for Complete Project | 21.6 |
|---|-------------------|-----------------------|---|
| FY | 1959 | FY 1960 | FY 1961 |
| Personal Services | 1.0 | 1.5 | ini esi. Vivillijiiniilikkimensijiik muunikustisiisiisiinin eksikkin |
| Other Expenses: Within Project | 0.5 | 0.2 | |
| Lab. Adm. & Ser. | 4.0 | 3.0 | Title data |
| Lab. Total | 5.5 | 4.7 | |
| Regional Office Washington Office | •055 | 047 | |
| Total | | | |
| Recommended Source of Funds Estimated Date of Completion | 5 | Regular, Contributed, | • |
| Recommended by: Originator Fred E. Lux | | ise 2 Filo ; mase) I | 1 ; Project F1 60 Bate 8/6/59 |
| Investigation Chief Fre | ed E. Lux | | 8/6/59 |
| Laboratory Director Her | | | 8/6/59 |
| Regional Director | Al F Puner | her | 8/19/59 |
| Branch Chief () | JHE. | | 12-24-59 |
| Approved by: Division Chief for Director | · Mit | | 1.00 |

Remarks

Sheet No. 1

Location: Woods Hole, Mass. Date: August 6, 1959
File No.

Research Project Outline

| Title of Project: Yellowtail: Age | and Growth, Southern N | lew England |
|--|--|---------------|
| Investigation Title: Flounder | interes de d'anne de la company de la co | |
| Investigation Chief: F. E. Lux | | |
| Project Leader: F. E. Lux, Fishe | ery Research Biologist, | GS-9 Grade |
| Assistants: (Title and Grade) Vacant, Statistical Clerk, GS- | | OI side |
| Collaborators: | | |

Need for Information: Define this parameter for determing efficient utilization of yellowtail.

Objective: Work out age and growth of fish using scales and otoliths from commercial and experimental catches.

Method of Procedure:

Phase 1: Collect length, scale, and otolith samples by ground.

Phase 2: Read scales and otoliths, summarize and interpret data.

| Flounder | - | 3 | | |
|----------|---|-------|-----|---|
| | | Sheet | No. | 2 |

File No.:

Method of Procedure: (Cont'd)

Phase 3:

| Estimated Costs: Total | Needed by Labora | tory for Complete Project | 23.5 |
|---|--------------------|--|-----------------------|
| | FY <u>1959</u> | FY 1960 | FY 1961 |
| Personal Services Other Expenses: | 1.0 | 1.7 | |
| Within Project | 0.5 | 0.3 | |
| Lab. Adm. & Ser. | 4.0 | 3.3 | |
| Lab. Total | 5.5 | 5.3 | |
| Regional Office Washington Office | •055 | 053 | |
| Total | | | |
| Recommended Source of Fu | | and Regular S-K, Regular, Contributed, | etc.) |
| Estimated Date of Comple | tion: Phase 1 FY 5 | 9; Phase 2 FY 60; Phase 3 F | Y ;Project FY 60 |
| Recommended by: Originator Fred F | . Lux | | <u>Date</u> 8/6/59 |
| Investigation Chief F | red E. Lux | | 8/6/59 |
| Laboratory Director | | aham | 8/6/59 |
| Regional Director | Joseph F. Ve | merka | 8/19/59 |
| Branch Chief Approved by: Division Chief for Dire | ector | | |

Remarks

(Continue on reverse side)

Suggest projects So. New England georges Bank and Cape cool ground be combined

#715 7/9/59

Sheet No. 1

Location: Woods Hole, Mass. Date: August 6, 1959
File No.

Research Project Outline

| Title of Project: Yellowtail: Age and Growth, Georges Bank |
|--|
| Investigation Title: Flounder |
| Investigation Chief: F. E. Lux |
| Project Leader: F. E. Lux, Fishery Research Biologist, GS-9 Name Title Grade |
| Assistants: (Title and Grade) Vacant, Statistical Clerk, GS-3 |
| Collaborators: |
| Need for Information: Define this parameter for determining efficient utilization of yellowtail. |
| |
| Objective: Work out age and growth of fish using scales and otoliths from commercial and experimental catches. |

Method of Procedure:

Phase 1: Collect length, scale, and otolith samples by ground.

Phase 2: Read scales and otoliths, summarize and interpret data.

Shcet No. 2

Filc No.:

Method of Procedure: (Cont'd)

Phase 3:

| Estimated Costs: Total | . Needed by Laborat | ory for Complete Project | 17.2 |
|--|---------------------|---|-----------------------|
| | FY <u>1959</u> | FY <u>1960</u> | FY 1961 |
| Personal Services Other Expenses: | 0.5 | 1,5 | 1.0 |
| Within Project | 0,2 | 0.2 | 0,2 |
| Lab. Adm. & Ser. | 0.8 | 3.0 | 2.0 |
| Lab. Total | 1.5 | 4.7 | 3. 2 |
| Regional Office Washington Office | .015 | 047 | .032 |
| Total | | | |
| Recommended Source of Fu | (S | and Regular -K, Regular, Contributed); Phase 2 FY 61; Phase 3 | • |
| Recommended by: Originator Free | d E. Lux | | <u>Date</u> 8/6/59 |
| Investigation Chief | Fred E. Lux | | 8/6/59 |
| Laboratory Director | Herbert W. Gra | | 8/6/59 |
| Regional Director | Joseph 4 Vec | nerthan | 8/19/59 |
| Branch Chief Approved by: Division Chief for Dir | ector | | |

Remarks

(Continue on reverse side)

Suggest projects de Nico England,
Georges and Cape Code
gebeurd be combined HHE 12-24-57
June 1. 4 40

#715 7/9/59

Sheet No. 1

Location: Woods Hole, Mass. Date: August 6, 1959
File No.

Research Project Outline

| Title of Project: Yellowtail: Age and growth, Cape Cod ground |
|--|
| Investigation Title: Flounder |
| Investigation Chief: F. E. Lux |
| Project Leader: F. E. Lux, Fishery Research Biologist, GS-9 Name Title Grade |
| Assistants: (Title and Grade) Vacant, Statistical Clerk, GS-3 |
| Collaborators: |
| Need for Information: Define this parameter for determining efficient utilization of yellowtail. |
| |
| |

Method of Procedure:

commercial and experimental catches.

Phase 1: Collect length, scale, and otolith samples by ground.

Objective: Work out age and growth of fish using scales and otoliths from

Phase 2: Read scales and otoliths, summarize and interpret data.

Method of Procedure: (Cont'd)

Phase 3:

| Estimated Costs: Total | Needed by Laborato | my 101 compacte ire ject | 14.9 |
|--|--|--|--|
| | FY <u>1959</u> | FY 1960 | FY 1961 |
| Personal Services Other Expenses: | 1.0 | 1.0 | 1.0 |
| Within Project | 0.3 | 0.3 | 0.3 |
| Lab. Adm. & Ser. | 4.0 | 3,0 | 2.0 |
| Lab. Total | 5, 3 | 4.3 | 3, 3 |
| Regional Office Washington Office | .053 | •043 | .033 |
| | | | |
| Total | | | |
| Total Recommended Source of Fu Estimated Date of Comple | (S- | Regular K, Regular, Contributed ; Phase 2 FY 61; Phase 3 | |
| Recommended Source of Fu Estimated Date of Comple Recommended by: | (S- | -K, Regular, Contributed | • |
| Recommended Source of Fu Estimated Date of Comple Recommended by: | (S- tion: Phase 1 FY 60 E. Lux | -K, Regular, Contributed | Project IY 61 Date 8/6/59 |
| Recommended Source of Fu. Estimated Date of Comple Recommended by: Originator Fred | (S- tion: Phase 1 FY 60 | K, Regular, Contributed ; Phase 2 FY 61; Phase 3 | FY ; Project FY 6 |
| Recommended Source of Fu Estimated Date of Comple Recommended by: Originator Fred Investigation Chief | (S- tion: Phase 1 FY 60 E. Lux Fred E. Lux Herbert W. Grah | K, Regular, Contributed ; Phase 2 FY 61; Phase 3 | Project FY 6 Date 8/6/59 8/6/59 |
| Recommended Source of Furthern Section 1 | (S- tion: Phase 1 FY 60 E. Lux Fred E. Lux Herbert W. Grah | K, Regular, Contributed; Phase 2 FY 61; Phase 3 | Project FY 6 Date 8/6/59 8/6/59 |

Remarks

(Continue on reverse side)

Louges and lapelod ground

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Will Combined 1/1/2-24-39

Mich 1-2-4-7

Sheet No. 1

Location: Woods Hole, Mass. Date: August 6, 1959 File No.

Research Project Outline

| Title of Project: Yellowtail: Comparative abundance | | | | | |
|--|--|--|--|--|--|
| Investigation Title: Flounder | Investigation Title: Flounder | | | | |
| Investigation Chief: F. E. I | ux | | | | |
| Project Leader: F. E. Lux | , Fishery Research Biologist, GS-9 | | | | |
| Assistants: (Title and Grade) Vacant, Statistical Clerk, | | | | | |
| Collaborators: | | | | | |
| Need for Information: Identification of cause or causes for drop in annual yellowtail catch so that some level of fishery prediction may be possible in near future. | | | | | |
| | | | | | |
| Objective: To work out relative of catch/boat/day for the yellowt | abundance of yellowtail, since 1942, in terms ail vessels. | | | | |

Method of Procedure:

- Phase 1: Obtain catch and effort of yellowtail trips landed at New Bedford (where 2/3 of yellowtail are landed). Separate trips by vessel size, fishing area, and date.
- Phase 2: Summarize and interpret data.

Shcet No. 2

Filc No.:

Method of Procedure: (Cont'd)

Phase 3:

| Estimated Costs: Total | Needed by Labora | tory for Complete Project | 48.6 |
|---|------------------|--|--------------------------------------|
| | FY <u>1959</u> | FY <u>1960</u> | FY 1961 |
| Personal Services | 0,5 | 0.1 | 1.0 |
| Other Expenses: Within Project | 0, 3 | 0.1 | 0.3 |
| Lab. Adm. & Ser. | 0.8 | 0.7 | 2.0 |
| Lab. Total | 1.6 | 0.9 | 3, 3 |
| Regional Office Washington Office | 016 | 009 | .033 |
| Total | | | |
| Recommended Source of Fur | (| and Regular S-K, Regular, Contributed, | |
| Recommended by: Originator Fred | | Phase 2 FY Phase 3 F | Y ; Project IY 664 Date 8/6/59 |
| Investigation Chief | Fred E. Lux | | 8/6/59 |
| Laboratory Director <u>Herbert W. Graham</u> | | | 8/6/59 |
| Regional Director_ | Joseph 4. Ve | mercher | 8/19/59 |
| Branch Chief Approved by: Division Chief for Dire | ctor_/// | H | 12-24-59 1 - 4-62 |

Remarks

Sheet No. 1

Location: Woods Hole, Mass. Date: August 6, 1959
File No.

Research Project Outline

| Title of Prog | ject: <u>Yellowtail:</u> F | Fishing mortality, Southern New | v England ground |
|------------------------|--------------------------------------|--|--------------------|
| Investigation | Title: Flounder | | |
| Investigation | n Chief: F. E. Lux | ζ | |
| Project Leade | er: <u>F. E. Lux,</u> Name | Fishery Research Biologist, | GS-9 |
| Assistants: Vacant, | (Title and Grade) Statistical Clerk, | Title GS-3 | Gr ade |
| Collaborators | 5 : | | |
| | ermation: To determ | nine estimate of this parameter tail. | for use in working |
| Objective: T | 'o analyze returns f | for fishing intensity and catch. | |
| Method of Pro | ocedure: | | |

Phase 2: Tabulate returns, adjust data, and estimate fishing mortality.

Phase 1: Mark fish on this ground.

| Method of Procedure: (| (Cont'd) |
|------------------------|----------|
|------------------------|----------|

Phase 3:

| Estimated Costs: Total | Needed by Labora | tory for Complete Project | 12.0 |
|--------------------------------------|------------------|--|--------------------|
| | FY <u>1959</u> | FY 1960 | FY 1961 |
| Personal Services Other Expenses: | 0.5 | 0.5 | 1.0 |
| Within Project | 0, 3 | 0,3 | 0.2 |
| Lab. Adm. & Ser. | 0.8 | 0.9 | 2.0 |
| Lab. Total | 1.6 | 1.7 | 3.2 |
| Regional Office Washington Office | .016 | .017 | .032 |
| Total | | | |
| Recommended Source of Fu | | nd Regular S-K, Regular, Contributed, | , ∈tc•) |
| Estimated Date of Comple | tion: Phase 1 FY | 19; Phase 2 FY ; Phase 3 F | Y Project FY 62 |
| Recommended by: Originator Fre | ed E. Lux | | 8/6/59 <u>Date</u> |
| Investigation Chief | Fred E. Lux | | 8/6/59 |
| Laboratory Director | Herbert W. Go | sham | 8/6/59 |
| Regional DirectorBranch Chief | Joseph 4. | Punealus | 8/19/59 |
| Approved by: Division Chief for Dir | ector | | |

Remarks

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#715 7/9/59

Sheet No. 1

Location: Woods Hole, Mass. Date: August 6, 1959
File No.

Research Project Outline

| Title of Project: Yellowtail: Fishing mortality, Cape Cod ground |
|---|
| Investigation Title: Flounder |
| Investigation Chief: F. E. Lux |
| Project Leader: F. E. Lux, Fishery Research Biologist, GS-9 Name Title Grade |
| Assistants: (Title and Grade) |
| Vacant, Statistical Clerk, GS-3 |
| Collaborators: . |
| Need for Information: To determine estimate of this parameter for use in working out efficient utilization of yellowtail. |
| Objective: To analyze returns for fishing intensity and catch. |
| Method of Procedure: |
| Phase 1: Mark fish on this ground. |

Phase 2: Tabulate returns, adjust data, and estimate fishing mortality.

| Method | \mathbf{of} | Procedure: | (Contid) |
|-----------|---------------|--------------|-------------|
| TAC OIL C | ~~ | TI COCCAGE C | (OOH O W) |

Phase 3:

| Estimated Costs: Total | . Needed by Laborator | y for Complete Project | 9.5 |
|--|-----------------------|-------------------------|---------------|
| | FY <u>1959</u> | FY 1960 | FY 1961 |
| Personal Services Other Expenses: | 0.5 | 0.2 | 0.5 |
| Within Project | 0.3 | 0.1 | 0.1 |
| Lab. Adm. & Ser. | 0.4 | 0.9 | 1.0 |
| Lab. Total | 1.2 | 1.2 | 1.6 |
| Regional Office Washington Office | .012 | .012 | .016 |
| Total | | | |
| Recommended Source of Fu | (S-K | , Regular, Contributed, | · |
| Estimated Date of Comple | tion: Phase 1 FY 59; | Phase 2 FY; Phase 3 FY | Project IY 62 |
| Recommended by: Originator Fre | d E. Lux | | 8/6/59 Date |
| Investigation Chief | Fred E. Lux | | 8/6/59 |
| Laboratory Director | Herbert W. Grahar | n | 8/6/59 |
| Regional DirectorBranch Chief | Joseph & Chin | unker | 8/19/59 |
| Approved by: Division Chief for Dir | ector | | |

Remarks

(Continue on reverse side)

Suggest projects en medality stadies he combined 15152 12-24-59 From 1 4- 60

#725 7/9/59

Sheet No. 1

Location: Woods Hole, Mass. Date: August 6, 1959 File No.

Research Project Outline

| Title of Project: Yellowtail: Fishing mortality, Georges Bank |
|---|
| Investigation Title: Flounder |
| Investigation Chief: F. E. Lux |
| Project Leader: F. E. Lux, Fishery Research Biologist, GS-9 Name Title Grade |
| Assistants: (Title and Grade) Vacant, Statistical Clerk, GS-3 |
| Collaborators: |
| Need for Information: To determine estimate of this parameter for use in working out efficient utilization of yellowtail. |
| Objective: To analyze returns for fishing intensity and catch. |
| Method of Procedure: |
| Phase 1: Mark fish on this ground. |

Phase 2: Tabulate returns, adjust data, and estimate fishing mortality.

Shcet No. 2

Filc No.:

Method of Procedure: (Cont'd)

Phase 3:

| Estimated Costs: Total | Needed by Laborato | ory for Complete Project | 17.0 |
|---|--------------------|--|-------------|
| | FY <u>1959</u> | FY 1960 | FY 1961 |
| Personal Services Other Expenses: | - | 0.5 | 1.3 |
| Within Project | | 0,2 | 0.2 |
| Lab. Adm. & Ser. | | 0.9 | 2.0 |
| Lab. Total | - <u> </u> | 1.6 | 3, 5 |
| Regional Office Washington Office | | 016 | •035 |
| Total | | | |
| Recommended Source of Function | (S- | lar -K, Regular, Contributed, ;Phase 2 FY ;Phase 3 FY | |
| Recommended by: OriginatorFred E | - | | 8/6/59 Date |
| Investigation Chief | Fred E. Lux | | 8/6/59 |
| Laboratory Director | Herbert W. Gra | ham | 8/6/59 |
| Regional Director Branch Chief | Joseph 4. V. | mertar | 8/19/59 |
| Approved by: Division Chief for Dire | ector | e paka dinaka da juliniya ili ka hasiniya da milaya ilikili digay waya sa ka ka ka ka dinaka da dinaka da ka k | |

Remarks

(Continue on reverse side)

Luggest projects en modelity

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#715 7/9/59

Sheet No. 1

Location: Woods Hole, Mass. Date: August 6, 1959
File No.

Research Project Outline

| Title of Project: Yellowtall: Total mortality from major grounds |
|---|
| Investigation Title: Flounder |
| Investigation Chief: F. E. Lux |
| Project Leader: F. E. Lux, Fishery Research Biologist, GS-9 Name Title Grade |
| Assistants: (Title and Grade) Vacant, Statistical Clerk, GS-3 |
| Collaborators: |
| Need for Information: To estimate this parameter for determining efficient utilization of yellowtail. |
| Objective: To use age frequency data (catch curves) for estimation of mortality. |
| Method of Procedure: |
| Phase 1: Combine age frequency data from commercial catch for several years by ground. |

Phase 2: Calculate total mortality estimates.

Shcet No. 2

Filc No.:

| Methed | of | Procedure: | (Cont'd) |
|-----------|-----|---------------|------------|
| TAC OTTOO | U.L | TI OUCCULUTE: | TOOM O' U. |

Phase 3:

| Estimated Costs: Total | l Needed by Laborato | ory for Complete Project | 14.3 |
|---|--|---|-----------------------------------|
| | FY 1959 | FY 1960 | FY 1961 |
| Personal Services Other Expenses: | 0.5 | 0.5 | 0.5 |
| Within Project | 0.1 | 0,2 | 0.1 |
| Lab. Adm. & Ser. | 0.8 | 0.9 | 1.0 |
| Lab. Total | 1.4 | 1.6 | 1,6 |
| Regional Office Washington Office | 014 | .016 | •016 |
| Total | | | |
| · · | | | |
| Recommended Source of Fi Estimated Date of Comple | (\$- | -K, Regular, Contributed | |
| Recommended Source of Fu Estimated Date of Comple Recommended by: | (5- | -K, Regular, Contributed | |
| Recommended Source of For Estimated Date of Comple Recommended by: | (Setion: Phase 1 FY58 | -K, Regular, Contributed | FY ; Project FY 6 |
| Recommended Source of Formated Date of Complete Recommended by: Originator Fre | (Setion: Phase l_F158 d E. Lux | K, Regular, Contributed | FY ; Project FY 6 8/6/59 |
| Recommended Source of Formated Date of Complete Recommended by: Originator Free Investigation Chief | (Setion: Phase 1 FY58 d E. Lux Fred E. Lux | K, Regular, Contributed | FY ; Project FY 6 Date 8/6/59 |
| Recommended Source of Formatted Date of Complete Recommended by: Originator Free Investigation Chief Laboratory Director | (Setion: Phase 1 F158 d E. Lux Fred E. Lux Herbert W. Gra | K, Regular, Contributed ; Phase 2 FY ; Phase 3_ | FY ; Project FY 6 8/6/59 8/6/59 |

Remarks

(Continue on reverse side)

Suggest projects en medality

HHE 1224-59

#725 7/9/59

Sheet No. 1

Location: Woods Hole, Mass. Date: August 6, 1959
File No.

Research Project Outline

| Title of Project: Yellowtail: Recruitment on major grounds | | | |
|---|--|--|--|
| Investigation Title: Flounder | | | |
| Investigation Chief: F. E. Lux | | | |
| Project Leader: F. E. Lux, Fishery Research Biologist, GS-9 | | | |
| Name Title Grade | | | |
| Assistants: (Title and Grade) Vacant, Statistical Clerk, GS-3 | | | |
| vacant, Statistical Cierk, GS-3 | | | |
| | | | |
| Collaborators: | | | |
| | | | |
| Necd for Information: Estimate of parameter needed for determining efficient harvest. | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Objective: To estimate number of recruits from experimental and commercial trawl catches. | | | |
| | | | |
| | | | |
| Method of Procedure: | | | |
| Phase 1: Calculate estimate of annual additions to stock. | | | |

Phase 2: Interpret data.

Flounder - 11 Shcet No. 2

Filc No.:

Method of Procedure: (Conttd)

Phase 3:

| Estimated Costs: Total | Needed by Laborat | ory for Complete Projec | t <u>19.0</u> |
|--|---|-------------------------|---------------|
| | FY 1959 | FY 1960 | FY 1961 |
| Personal Services Other Expenses: Within Project | und pas maganda africadore de como de conjunto de pasa de para ser para ser para de como de co | | 0.5 |
| Lab. Adm. & Ser. | ## 105 | | 1.0 |
| Lab. Total | ine ma | | 1.7 |
| Regional Office Washington Office | | | .017 |
| Total | | | |
| Recommended Source of Fur Estimated Date of Complet | (S | -K, Rogular, Contribute | |
| Recommended by: Originator Fred E. | | | 8/6/59 Date |
| Investigation Chief F | red E. Lux | | 8/6/59 |
| Laboratory Director | | nam | 8/6/59 |
| Regional Director | Josep & Vice | neather | 8/19/59 |
| Branch Chief | U 1 2/1/2 | £ | 12-24-57 |
| Approved by: Division Chief for Dire | ector // | Á | 1. 1. 60 |

Remarks

Sheet No. 1

Location Woods Hole, Mass. Date: August 6, 1959
File No.

Research Project Outline

| Title of Project: Blackback: Maintain record of catch and samples |
|---|
| Investigation Title: Flounder |
| Investigation Chief: F. E. Lux |
| Project Loader: F. E. Lux, Fishery Research Biologist, GS-9 Name Title Grade |
| Assistants: (Title and Grade) Vacant, Statistical Clerk, GS-3 |
| Collaborators: |
| Need for Information: To keep track of fluctuations and unusual happenings in fishery To obtain samples of lengths and scales for future use. |
| Objective: To keep track of fluctuations and unusual happenings in fishery. To obtain samples of lengths and scales for future use. |

Phase 1: Record catches, collect lengths and scale samples from commercial

Phase 2:

Method of Procedure:

catch.

Method of Procedure: (Contid)

Phase 3:

| Estimated Costs: Total | Needed by Laborat | tory for Complete Project | 35.5 |
|---------------------------------------|--------------------|--|------------------|
| | FY <u>1959</u> | FY <u>1960</u> | FY 1961 |
| Personal Services Other Expenses: | | 0.2 | 0.5 |
| Within Project | Park - 1440. | 0.1 | 0.1 |
| Lab. Adm. & Ser. | 100 | 0.6 | 1.3 |
| Lab. Total | | 0.9 | 1.9 |
| Regional Office Washington Office | | .009 | .019 |
| Total | | | |
| Recommended Source of Fun | .10.5 | K and Regular -K, Regular, Contributed, | etc.) |
| Estimated Date of Complete | tion: Phase l FY 6 | 0;Phase 2 FY ;Phase 3 F | Y ;Project IY 66 |
| Recommended by: Originator Fred E. | Lux | | 8/6/59 |
| Investigation Chief | Fred E. Lux | | 8/6/59 |
| Laboratory Director Herbert W. Graham | | 8/6/59 | |
| Regional Director_ | Joseph 4 | Purereller | 8/19/59 |
| Branch Chief | 1 1 24 | <u> </u> | 12-24-59 |
| Approved by: Division Chief for Dire | ector /// | H | 1. 1 160 |

Remarks

Sheet No. 1

Location: Woods Hole, Mass. Date: August 6, 1959
File No.

Research Project Outline

| Title of Project: Fluke: Maintain record of catch and samples |
|---|
| Investigation Title: Flounder |
| Investigation Chief: F. E. Lux |
| Project Leader: F. E. Lux, Fishery Research Biologist, GS-9 Name Title Grade |
| Assistants: (Title and Grade) |
| Vacant, Statistical Clerk, GS-3 |
| Collaborators: |
| Need for Information: To maintain record of catch fluctuations and unusual events in the fishery. To obtain samples of lengths and scales for future use. |
| Objective: To maintain record of catch fluctuations and unusual events in the fishery. To obtain samples of lengths and scales for future use. |
| Method of Procedure: |
| Phase 1: Record catches, collect lengths and scale samples from commercial |

Phase 2:

catches.

Flounder - 14 Shoet No. 2

File No.:

Method of Procedure: (Cont'd)

Phase 3:

| Estimated Costs: Total | . Needed by Labor | ratory for Complete I | roject 35.0 |
|--------------------------------------|-------------------|--------------------------------|--|
| | FY 1959 | FY <u>1960</u> | FY 1961 |
| Personal Services | | 0.2 | 0,5 |
| Other Expenses: Within Project | | <u> </u> | 0.1 |
| Lab. Adm. & Ser. | | 0.6 | 1.0 |
| Lab. Total | | 0.9 | 1.6 |
| Regional Office Washington Office | | .009 | 016 |
| Total | | | |
| Recommended Source of Fr | | d Regular (S-K, Regular, Contr | ributed, etc.) mase 3 FY ; Project FY 664 |
| Recommended by: Originator Fred E. | | 1 60;11ase 2 11 ,11 | 8/6/59 Date |
| Investigation Chief | Fred E. Lux | | 8/6/59 |
| Laboratory Director | Herbert W. Gr | anam | 8/6/59 |
| Regional Director | Local 4. | Pemerchae | 8/19/59 |
| Branch Chief | | SHE. | 12-24-59 |
| Approved by: Division Chief for Div | rector | l & H | 1-4 to |
| | / | | |

Remarks

Sheet No. 1

Location: Woods Hole, Mass. Date: August 6, 1959 File No.

Research Project Outline

| Title of Project: Dab: Maintain record of catch and samples |
|---|
| Investigation Title: Flounder |
| Investigation Chief: F. E. Lux |
| Project Leader: F. E. Lux, Fishery Research Biologist, GS-9 Name Title Grade |
| Assistants: (Title and Grade) Vacant, Statistical Clerk, GS-3 |
| Collaborators: |
| Need for Information: To maintain record of catch fluctuations and unusual events in the fishery. To obtain samples of lengths and scales for future use. |
| Objective: To maintain record of catch fluctuations and unusual events in the fishery. To obtain samples of lengths and scales for future use. |
| Method of Procedure: |

Phase 1: Record catches, collect lengths and scale samples from commercial

Phase 2:

catches.

File No.:

Method of Procedure: (Cont † d)

Phase 3:

| Estimated Costs: Total | Needed by Laborat | ory for Complete Projec | t <u>33.7</u> |
|--|--------------------|---|-----------------------|
| | FY 1959 | FY <u>1960</u> | FY 1961 |
| Personal Services Other Expenses: | per sea | | 0.5 |
| Within Project | | | 0.1 |
| Lab. Adm. & Ser. | and tree | | 1.0 |
| Lab. Total | day Sing | | 1.6 |
| Regional Office Washington Office | | | •016 |
| Total | | | |
| Recommended Source of Fu | | K and Regular -K, Regular, Contributed | d, etc.) |
| Estimated Date of Comple | tion: Phase 1 FY61 | Phase 2 FY; Phase 3 | FY Project FY 66 |
| Recommended by: Originator Fred E | • Lux | | <u>Date</u> 8/6/59 |
| Investigation Chief] | Fred E. Lux | | 8/6/59 |
| Laboratory Director | Herbert W. Graha | am. | 8/6/59 |
| Regional Director_ | Joseph 4. V | unerchan | 8/19/59 |
| Branch Chief | () 1 2/10 | ¥. | 12-24-59 |
| Approved by: Division Chief for Dir | ector | H | field be |

Remarks

Sheet No. 1

Location: Woods Hole, Mass. Date: August 6, 1959
File No.

Research Project Outline

| Title of Project: Gray sole: Maintain record of catch and s | amples |
|--|--------|
| Investigation Title: Flounder | |
| Investigation Chief: F. E. Lux | |
| Project Leader: F. E. Lux, Fishery Research Biologist, | GS-9 |
| Name Title Assistants: (Title and Grade) Vacant, Statistical Clerk, GS-3 | Grade |
| Collaborators: | |

Need for Information: To maintain record of catch fluctuations and unusual events in the fishery. To obtain samples of lengths and scales for future use.

Objective: To maintain record of catch fluctuations and unusual events in the fishery. To obtain samples of lengths and scales for future use.

Mothod of Procedure:

Phase 1: Record catches, collect lengths and scale samples from commercial catches.

Phase 2:

Flounder - 16 Shcet No. 2

File No.:

Method of Procedure: (Cont'd)

Phase 3:

| Estimated Costs: Total Needed by Laboratory | for Complete Project | ct <u>32.9</u> |
|---|--------------------------|----------------|
| FY 1959 | FY 1960 | FY <u>1961</u> |
| Personal Services Other Expenses: | | 0,5 |
| Within Project | | 0,1 |
| Lab. Adm. & Ser. | les es | 1.0 |
| Lab. Total | | 1.6 |
| Regional Office Washington Office | | •016 |
| Total | | |
| | Regular, Contribute | • |
| Estimated Date of Completion: Phase l FY61; Recommended by: | hase 2 <u>FY</u> ; Phase | |
| Originator Fred E. Lux | | 8/6/59 Date |
| Investigation Chief Fred E. Lux | | 8/6/59 |
| Laboratory Director Herbert W. Graham | | 8/6/59 |
| Regional Director Joseph & Vence | relier | 8/19/59 |
| Branch Chief 744E. | | 12-24-59 |
| Approved by: Division Chief for Director | | 1. 4 he |

Remarks